

REMARKS

Claims 1-13 and 15-22 have been examined. The above amendments change the text of claim 1 by adding subject matter supported by the specification at page 26, lines 13-14; page 27, lines 8-9; page 28, lines 9-10; page 23, lines 11-15; and page 24, lines 13-17. No new matter has been added by these amendments.

Examiner Interview

Applicants' representative contacted the Examiner on March 29, 2000 in order to clarify the new matter issue raised in the Advisory Action dated March 3, 2000. At that time, the Examiner indicated that the new matter issue was directed to the phrase "substantially free from a polybasic carboxylic acid" in amended claim 1, which was submitted in the Amendment filed January 27, 2000 (not entered). The Examiner stated that the phrase "soluble in an organic solvent" was properly supported by the specification at the pages indicated above. Accordingly, the Examiner agreed that a claim amended to include this language would not raise new matter issues. Applicants thank the Examiner for clarifying the issue.

Rejection under 35 USC § 103(a)

Claims 1-13 and 15-22 have been rejected under 35 USC § 103(a) as being unpatentable over Ishii et al. (US 3,816,150). Claims 18-21 have been rejected under 35 USC § 103(a) as being obvious over Seo et al. (US 5,240,665) in view of Ishii et al. These rejections are respectfully traversed.

Reconsideration and withdrawal thereof are requested.

In Applicants' invention, the cellulose acetate has at least one characteristic selected from those described in (i)-(iii) of instant claim 1. According to characteristic (i), at least one carboxyl group derived from cellulose (optionally including hemicellulose) as a raw material is a free carboxyl group.

According to characteristic (ii), the carboxyl group derived from a cellulose or hemicellulose as a raw material can be in the form of an acid having a specific pKa, or the metal salt of such an acid. By having a specific pKa, the acid will act as a stronger acid than the carboxyl group of the cellulose acetate. Further support for this argument can be found in the "Cellulose Handbook" pages 258-259 which was submitted with the January 27, 2000 Amendment (not entered). This reference describes that the amount of a carboxyl group in cellulose is determined by an ion-exchange reaction of the cellulose with calcium acetate to generate acetic acid from the calcium acetate

(as well as generating a calcium salt of the carboxyl group in the cellulose), and titrating the residual calcium ion using EDTA and a buffer solution. This demonstrates that a stronger acid than acetic acid is required in order to retain a carboxyl group of cellulose acetate, which is derived from a raw material cellulose, as a free carboxyl group. If the acidity of the acid is too strong, the cellulose acetate may deteriorate.

According to characteristic (iii), the cellulose acetate can contain an alkali metal or an alkaline earth metal, wherein the total content of the alkali metal and the alkaline earth metal in 1 gram of the cellulose acetate is 5.5×10^{-6} equivalent or less in terms of the ion equivalent. Both Ishii and Seo fail to teach the characteristics (i)-(iii) of the present invention.

Ishii describes a process for making modified cellulose acetate which comprises forming or molding a mixed cellulose ester. The ester is made by esterifying (a) cellulose with (b) acetic acid and (c) polybasic carboxylic acid. The molded product is then treated with a liquid treating agent which consists of an aqueous solution of a water-soluble, polyvalent metal salt. According to Ishii, the mixed ester of cellulose is treated with a divalent or higher metal salt in order to increase the solvent resistance. See Ishii, column 2, lines 37-41.

Seo describes a process for producing cellulose acetate fibers wherein cellulose acetate, acetone, a metal oxide precursor, acid and water are mixed to

form a solution which is then filtered and spun. According to Seo, the cellulose acetate fiber is produced from a cellulose acetate/acetone dope solution by a dry spinning technique. See column 1, lines 31-34.

Both Ishii and Seo fail to disclose or suggest that the cellulose acetate can have a free carboxyl group which is obtained from the reaction of a cellulose, which may contain a hemicellulose, with acetic anhydride, which is substantially free from a polybasic carboxylic acid, in the presence of a sulfuric acid catalyst.

Additionally, Ishii teaches that in order to increase solvent resistance, the carboxyl groups derived from the polybasic carboxylic acid residue should be used for crosslinking with a polyvalent metal in order to form a molded object. The resulting molded object has improved solvent resistance and is insoluble in an organic solvent. Therefore, Ishii fails disclose or suggest a cellulose acetate which is soluble in an organic solvent as well as having a free carboxyl group. Seo also fails to teach this feature of the present invention. Accordingly, the combination of Ishii and Seo do not make Applicants' invention *prima facie* obvious.

Further, since the cellulose acetate according to the present invention has a free carboxyl group and is soluble in an organic solvent, a dope containing this cellulose acetate exhibits improved spinnability properties. A

film obtained by casting the dope also exhibits significantly improved releaseability properties. Neither Ishii nor Seo appreciate these benefits. In fact, Seo describes that the addition of the metal acid precursor to a cellulose ester solution increases the production speed since the viscosity of the solution is reduced. Thus, Seo fails to teach that a free carboxyl group improves the releaseability of a film as Applicants' have discovered.

Inasmuch as Ishii and Seo do not make the presently claimed invention *prima facie* obvious, and the defects are not cured by their combination, the rejection of claims 1-13 and 15-22 under 35 U.S.C. § 103(a) over these cited references should be withdrawn.

CONCLUSION

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and allowance of the claims of the present application are respectfully requested. In the event that the Amendment does not place the present application into condition for allowance, entry thereof is respectfully requested as placing the present application into better condition for appeal.

If the Examiner has any questions concerning this application, he is requested to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants petition for an extension of three months to April 26, 2000 for the period in which to file a response to the Office Action dated October 26, 1999. The required fee of \$870.00 is being submitted herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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